

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
31 March 2005 (31.03.2005)

PCT

(10) International Publication Number
WO 2005/029182 A3

(51) International Patent Classification⁷: G03F 1/14, 7/20

(21) International Application Number:
PCT/IB2004/051772

(22) International Filing Date:
15 September 2004 (15 09 2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03103508 2 23 September 2003 (23 09 2003) EP

(71) Applicant (for all designated States except US): **KONINKLUKE PHILIPS ELECTRONICS N.V.** [NL/NL],
Groenewoudseweg 1, NL 5621 BA Eindhoven (NL)

(72) Inventors; and

(75) Inventors/Applicants (for US only): **LOOS, Marinus, A., D., M.** [NL/NL], c/o Prof Holstlaan 6, NL 5656 AA Eindhoven (NL) **VONCKEN, Rudolf, M., J.** [NL/NL],
c/o Prof Holstlaan 6, NL 5656 AA Eindhoven (NL)

(74) Agent: **ROLFES, Johannes, G., A., Prof** Holstlaan 6,
NL 5656 AA Eindhoven (NL)

(81) Designated States (unless otherwise indicated for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

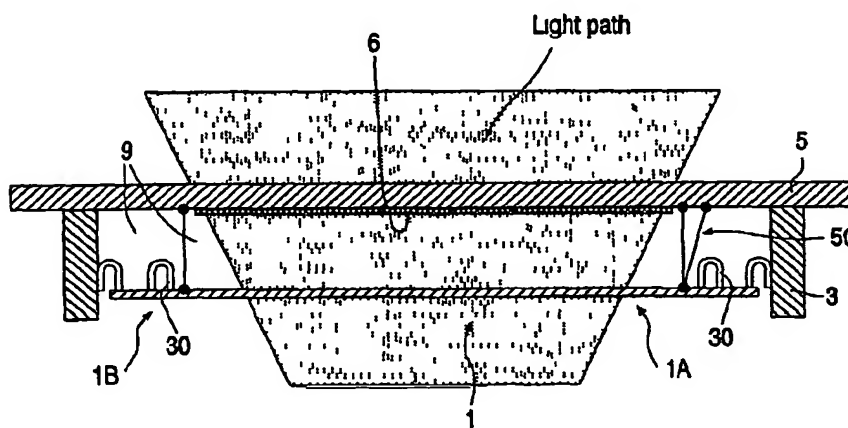
(84) Designated States (unless otherwise indicated for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Declaration under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR PROTECTING A RETICLE USED IN CHIP PRODUCTION FROM CONTAMINATION



(57) Abstract: A transparent pellicle member (1), comprising an inner or central portion (1A) and an outer peripheral portion (1B) mounted across a reticle for use in semiconductor chip fabrication, substantially parallel thereto and with a space (9) therebetween. The central portion (1A) of the pellicle (1) is fixed with regard to position and tilt angle to the reticle base plate (5) by means of one or more anchors (50). The outer or peripheral portion (1B) of the pellicle (1) is separate from the central portion (1A). It is connected on each side to the central portion (1A) and to a frame (3) by means of flexible connectors (30), which are sufficiently flexible to permit movement of the peripheral portion (1B) of the pellicle membrane in a direction perpendicular to the reticle, but is sufficiently resistant to movement thereof in other directions. As a result, the gas pressure difference between the space (9) and the surrounding atmosphere supports the outer portion (1B) of the pellicle (1) using the weight of that portion of the pellicle (1) itself. As a result of the 'floating' portion (1B), a pressure difference is created which is required to avoid deflection of the inner portion (1A).



EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent

(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Published:

— with international search report

(88) Date of publication of the international search report:

23 February 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.